

REMARKS/ARGUMENTS

Claims 20 and 22-27 stand allowed, with claims 1-19 and 30 rejected in the outstanding Official Action. Claims 1, 6 and 10 have been amended and therefore claims 1-20, 22-27 and 30 remain in this application.

The Examiner's indication of acceptance of the formal drawings submitted January 16, 2002 is very much appreciated. However, in section 2, the Examiner notes that the Information Disclosure Statement previously filed failed to include either the Rule 97(e) statement or the late submission fee. Applicants note for the record that there was a Supplemental Information Disclosure Statement with the Rule 97(c) fee submitted on January 7, 2004. Consideration of these references in due course is respectfully requested.

Claim 6 is objected to, with the Examiner suggesting that "the fraction of air" lacks proper antecedent basis. Upon a detailed review, it appears that claim 6 should have been dependent upon claim 4, rather than claim 1. Applicants have made this amendment to claim 6, and it is noted that claim 4 provides clear antecedent basis for the subject matter recited in claim 6.

Claims 1, 2, 5, 10 and 11 stand rejected under 35 USC §102 as being anticipated by Fink (U.S. Patent 6,463,200). Fink teaches an optical waveguide utilizing periodic variations in reflective index where each of the layers is coaxial with each other layer. This is diametrically opposite from applicants' photonic crystal fiber which has periodic variations across the higher refractive index region, but those regions are not coaxial.

Applicants have amended independent claims 1 and 10 to specify that the regions of higher refractive index which are substantially periodic are non-coaxial regions as shown in applicants' Figure 1 and elsewhere in applicants' specification. This limitation clearly distinguishes the Fink reference which teaches that all regions of refractive index variation are coincident with one another.

Claims 1, 2, and 5-7 stand rejected under 35 USC §102 as being anticipated by Borelli (U.S. Patent 6,496,632). Applicants' original claim 1 as well as amended claim 1 recited that light is confined to the "lower refractive index region by virtue of a photonic band gap of the cladding material." There is no disclosure in the Borelli patent of such a limitation. In fact, the Borelli patent merely speculates as to a waveguide embodiment "which is thought to be of interest is illustrated in FIG. 7." (Col. 8, ln 63-64). There is no disclosure of light being confined to the lower refractive index region, let alone being confined "by virtue of a photonic band gap of the cladding material."

While the Examiner concludes (at the end of section 6 of the rejection) that "light can be substantially confined . . ." (emphasis added), this is a speculative conclusion without support in the Borelli patent. Borelli can only be taken for what it discloses and renders obvious. Without speculation, there is no clear teaching of the subject matter of the claims and any further rejection thereunder is respectfully traversed.

Claims 8, 9, 12-19 and 30 stand rejected under 35 USC §103 as being unpatentable over Fink. In as much as these claims all ultimately depend from claim 1, the above comments distinguishing claim 1 from the Fink reference are herein

incorporated by reference. Because the Fink reference fails to teach claimed structure and no other reference of record teaches that claimed structure, the claim cannot be obvious under the provisions of 35 USC §103. The Examiner has failed to set out a *prima facie* case of obviousness and any further rejection is respectfully traversed.

Claims 3, 4, 8-19 and 30 stand rejected under 35 USC §103 as being unpatentable over Borelli. In as much as claims 3, 4, 8, 9, 12-19 and 30 all ultimately depend from claim 1, the above comments distinguishing claim 1 from the Borelli reference are herein incorporated by reference. Claim 10 (and claim 11 dependent thereon) has been amended to recite the similar limitation. Moreover, the Examiner admits that Borelli "does not specifically disclose . . ." a number of features set out in the claims (see the paragraph bridging pages 5 & 6).

Because the Borelli reference fails to teach the claimed structure and no other reference of record teaches that claimed structure, the claims cannot be obvious under the provisions of 35 USC §103. Clearly the Examiner has failed to set out a *prima facie* case of obviousness and any further rejection is respectfully traversed.

The Examiner's indication of allowance of claims 20 and 22-27 is appreciated.

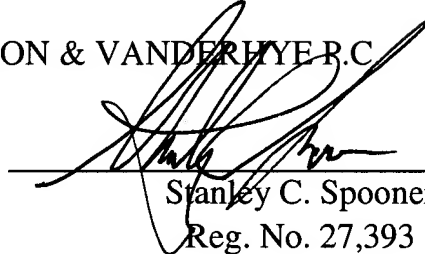
Having responded to all objections and rejections set out in the Official Action, it is submitted that pending claims 1-20, 22-27 and 30 are in condition for allowance and notice to that effect is respectfully requested. Should the Examiner be of the opinion that a brief telephone or personal interview would facilitate the allowance of the above claims, she is requested to contact that applicants below identified representative.

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Respectfully submitted,

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